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Perceived Quality of Teaching Model Implementation in Physical Education Teacher Education: A Descriptive Survey

Suppawan Vongsrangsap[1], Putri Nur Alifah[2*]

[1]*Department of Physical Education, Faculty of Education and Development Sciences, Kasetsart University, Nakhon Pathom, Thailand*
[2]*Department of Physical Education, Faculty of Sports and Health Sciences, Universitas Negeri Surabaya, Surabaya, Indonesia*

Correspondence Email: *24060463091@mhs.unesa.ac.id*

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ABSTRACT

This study describes how students perceive the implementation of teaching models in Physical Education Teacher Education (PETE) courses and examines the preliminary internal consistency and item characteristics of the Student Perceptions of Teaching Model Implementation Questionnaire (SP-TMIQ). Fifty students from Universitas Negeri Surabaya, Indonesia, were recruited through purposive sampling. The 30-item questionnaire used a five-point Likert scale and covered six conceptual dimensions: Model Implementation and Structure, Student-Centered Learning, Active Participation and Autonomy, Collaborative Learning, Cognitive Engagement and Problem Solving, and Feedback and Assessment. Descriptive statistics, Cronbach's alpha, and corrected item–total correlations were computed in IBM SPSS Statistics. The overall mean was 4.125 (SD = 0.541), indicating generally positive perceptions. Student-Centered Learning had the highest dimension mean (M = 4.236, SD = 0.593) and Collaborative Learning the lowest (M = 4.036, SD = 0.673). At the item level, opportunities for direct learning experience were rated highest and consistent implementation of the teaching model lowest. Cronbach's alpha ranged from 0.855 to 0.901, and corrected item–total correlations from 0.534 to 0.868, suggesting acceptable internal consistency in this sample. These values do not establish validity or confirm the six-dimension structure, which require expert review and testing with larger, more diverse samples.

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INTRODUCTION

Physical education at the university level involves more than fitness and motor skills (Hinojosa-Torres et al., 2025). It also allows students to build the cognitive, social, and independent learning competencies that support lifelong learning and professional practice (Virtanen et al., 2022). In Physical Education Teacher Education (PETE) programs, learning experiences should engage students actively in understanding theory, practicing movement skills, working with peers, making decisions, and reflecting on their own learning (Sørensen & Lagestad, 2024). This is especially important for prospective physical education teachers, who need not only subject knowledge and skills but also the pedagogical competence to help others learn in meaningful ways (Cho et al., 2024) .

The quality of learning in physical education depends partly on the pedagogical approaches and models that lecturers adopt (Fernandez-Rio & Iglesias, 2024; J. Zhang et al., 2024). A pedagogical model provides a framework for organizing learning objectives, activities, student interactions, the teacher's role, and assessment (Sørensen & Lagestad, 2024). Models commonly used in physical education include Sport Education, Cooperative Learning, Teaching Games for Understanding (TGfU), Teaching Personal and Social Responsibility (TPSR), Inquiry-Based Learning, Problem-Based Learning, and Project-Based Learning (Arufe-Giráldez et al., 2023; Fernandez-Rio & Iglesias, 2024; J. Zhang et al., 2024). These models differ in pedagogical orientation, instructional structure, and intended learning outcomes (Fernandez-Rio & Iglesias, 2024), so evaluating and improving teaching in PETE also calls for attention to how students actually experience them.

Student-centered and active approaches aim to promote engagement and meaningful learning, yet what a model intends is not always what students experience (Crisol Moya & Caurcel Cara, 2021; Kleppan Flaat et al., 2025). Student perceptions can reveal how activities are organized, how many students' room have to participate and make decisions, and how they experience collaboration, cognitive engagement, feedback, and assessment. Earlier work has stressed the value of asking students about the teaching methodologies used in physical education (Crisol Moya & Caurcel Cara, 2021) and student voice and perception surveys have been used to reflect on and improve teaching, although their interpretation requires attention to context and limitations (Fernandez-Rio & Iglesias, 2024). Students' own accounts can also illuminate the educational processes within physical education programs (Basuki et al., 2025) .

A range of instruments is available for evaluating teaching methodologies in physical education. A systematic review by Leo et al., (2023) identified 63 instruments in 58 articles that differed in the dimensions assessed, number of items, response formats, and samples. This variety offers a basis for choosing or adapting an instrument, but it also means that the fit between a measure and its intended purpose and context must be checked. Research on pedagogical approaches in schools and higher education, including PETE, likewise points to the need to examine pedagogical models, learning outcomes, and implementation conditions together (Sanches Neto et al., 2026) .

Despite the many pedagogical approaches and instruments available, context-specific evidence remains useful for understanding how students experience teaching model implementation in PETE programs (Sanches Neto et al., 2026). Students' views on instructional organization, student-centered learning, active participation and autonomy, collaboration, cognitive engagement and problem solving, and feedback and assessment can help lecturers reflect on their teaching (Crisol Moya & Caurcel Cara, 2021;Treschman et al., 2024). This study aimed to describe students' perceptions of teaching model implementation at Universitas Negeri Surabaya (UNESA) across these six conceptual dimensions, using the Student Perceptions of Teaching Model Implementation Questionnaire (SP-TMIQ), and to examine the questionnaire's internal consistency and item characteristics in this sample. The study does not compare the effectiveness of teaching models, and its results are neither nationally representative estimates nor a full validation of the instrument.

METHODS

Research Design

This study used a quantitative descriptive survey design to describe students' perceptions of teaching model implementation in PETE courses and to examine the internal consistency and item characteristics of the SP-TMIQ. A descriptive survey suited this aim because the focus was on what students reported experiencing. This design is considered appropriate because it allows for the systematic collection of student perceptions through structured questionnaires, which are then summarized numerically to identify response patterns on each statement item. In addition, this design supports the analysis of item characteristics and internal consistency, which is relevant for the initial evaluation of SP-TMIQ as a measure of student perception. No intervention was administered, no teaching models were compared, and no causal relationships were examined.

Participants and Sampling Procedure

Fifty students from UNESA, Indonesia, took part. They were selected through purposive sampling according to three criteria: (a) active enrollment in the Physical Education, Health, and Recreation (PJKR) program or a comparable Physical Education program; (b) experience of Physical Education courses that used a teaching model or instructional approach; and (c) voluntary agreement to participate. Purposive sampling was chosen to reach students with relevant first-hand experience, and participants were asked to respond on the basis of their own learning experiences. The sample was not intended to represent all PETE students in Indonesia, so the results should be read in light of the institutional context and sample characteristics.

Research Instrument

Perceptions were measured with the SP-TMIQ, a 30-item questionnaire on students' teaching and learning experiences in Physical Education courses. The questionnaire has six conceptual dimensions of five items each, all concerning students' perceptions of the following. The conceptualization of students' perceptions of the learning environment is in line with previous research on the learning climate in Physical Education, which highlights the role of instructional practices and classroom experiences in shaping student engagement and learning experiences (Gómez-López et al., 2026) .

1. Model Implementation and Structure (MIS): the regularity, organization, and clarity of instructional activities and of the implementation of the teaching model (Hastie & Casey, 2014; Leo et al., 2023).
2. Student-Centered Learning (SCL): the extent to which learning activities emphasize students' needs, engagement, and contributions to the learning process.
3. Active Participation and Autonomy (APA): opportunities to participate actively and to exercise autonomy in learning-related decisions (Gómez-López et al., 2026; Maldonado et al., 2017).
4. Collaborative Learning (CL): opportunities for cooperation, interaction, and collaborative learning among students (Liu et al., 2026).
5. Cognitive Engagement and Problem Solving (CEPS): opportunities to engage in thinking, analysis, decision making, and problem solving (Manninen et al., 2025a; M. Zhang et al., 2026) .
6. Feedback and Assessment (FA): feedback and assessment practices that support learning and improvement (Treschman et al., 2025; Nyberg et al., 2026) .

The six dimensions were developed by synthesizing relevant literature on teaching and learning in Physical Education, instead of adopting the existing validated questionnaire in its entirety. Each item was rated on a five-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree), with higher scores indicating more positive perceptions. Dimension scores were calculated as the mean of the five items in each dimension, and the overall score as the mean of all 30 items. In addition to the perception items, respondents indicated which teaching models or instructional approaches they had experienced: Direct Instruction, Cooperative Learning, Teaching Games for Understanding (TGfU), Sport Education, Inquiry-Based Learning, Problem-Based Learning, Project-Based Learning, Peer Teaching, and Teaching Personal and Social Responsibility (TPSR). These responses described the instructional context and were not part of the SP-TMIQ scores.

Instrument Development and Adaptation

The SP-TMIQ was developed by adapting constructs and indicators from earlier literature on teaching methodologies, pedagogical models, cooperative learning, autonomy support, problem solving, and feedback and assessment in Physical Education. Item wording and context were adjusted to the experiences of students in PJKR and comparable programs. The six dimensions were defined for the descriptive purposes of this study and do not represent an empirically confirmed factor structure. No formal content validation by expert judgment was carried out, so the content validity of the instrument has not been independently established. This study therefore examined internal consistency and item characteristics as a first indication of measurement quality.

Data Collection Procedure

Data were collected online through an electronic questionnaire in October 17 to 23, 2026. Before starting, prospective participants were informed of the research objectives, the procedure, the voluntary nature of participation, and how their data would be used. Those who agreed first indicated which teaching models or instructional approaches they had experienced in Physical Education courses and then answered the 30 SP-TMIQ items on the basis of their own learning experiences.

Data Analysis

The responses were first checked for completeness, duplicate submissions, missing values, and unusual patterns such as identical answers across all items. Such patterns were reviewed case by case and did not lead to automatic exclusion. The numbers of submitted questionnaires, excluded responses, and valid cases were recorded.

Descriptive statistics were used to summarize responses at both the item and dimension levels. The statistics included the number of valid responses (n), mean, and standard deviation (SD). Mean scores were grouped into five categories based on equal intervals of the five-point scale: very low (1.00–1.80), low (1.81–2.60), moderate (2.61–3.40), high (3.41–4.20), and very high (4.21–5.00). These categories were used as a guide for interpreting the results and were not treated as validated or normative thresholds. The teaching models respondents had experienced were also summarized using frequencies and percentages. Since respondents could select more than one model, percentages were calculated based on the number of valid respondents and could therefore exceed 100% when added together.

Cronbach's alpha was calculated for each of the six dimensions to examine internal consistency. Values of 0.70 or higher were considered a general reference for acceptable consistency, rather than definitive evidence of instrument quality. The estimates were considered alongside the number of items, sample size, and study context. Corrected item–total correlations were also examined for each item in relation to the remaining items within its dimension. Items with correlations below 0.30 would be considered for further review, but would not be removed automatically. Their wording, conceptual relevance, and response

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patterns would be considered when interpreting the results. Cronbach's alpha if item deleted was examined as additional information, while decisions about retaining items were based on both their conceptual relevance and statistical results.

RESULTS

Data Screening and Participants

All 50 students from UNESA who took part were included in the analysis. Every participant completed all 30 SP-TMIQ items, so there were no missing data. The findings therefore describe these participants only.

Teaching Models Experienced by Participants

Table 1 shows how many participants reported experiencing each teaching model or pedagogical approach in their Physical Education courses. Because respondents could select more than one option, the percentages of cases show the share of participants selecting each model and sum to more than 100%. TGfU was selected most often (34 students, 68.0%), followed by Sport Education (33 students, 66.0%) and Project-Based Learning (31 students, 62.0%). Peer Teaching was chosen by 26 students (52.0%), Problem-Based Learning by 25 (50.0%), and Cooperative Learning by 24 (48.0%). Direct Instruction was selected by 21 students (42.0%) and TPSR by 10 (20.0%). No respondent selected Inquiry-Based Learning.

Table 1. Teaching Models Experienced by Participants

Teaching model	*n*	Percentage of responses	Percentage of cases
Direct Instruction	21	10.3	42.0
Cooperative Learning	24	11.8	48.0
Teaching Games for Understanding (TGfU)	34	16.7	68.0
Sport Education	33	16.2	66.0
Inquiry-Based Learning	0	0.0	0.0
Problem-Based Learning	25	12.3	50.0
Project-Based Learning	31	15.2	62.0
Peer Teaching	26	12.7	52.0
Teaching Personal and Social Responsibility (TPSR)	10	4.9	20.0
Total	**204**	**100.0**	**408.0**

Note. Respondents could select more than one model. % of responses is based on the 204 responses given; % of cases is based on the 50 respondents and therefore sums to more than 100%.

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Descriptive Statistics of Student Perceptions

Table 2 summarizes perceptions across the six dimensions, each scored as the mean of its five items on the five-point scale. The overall mean was 4.125 (*SD* = 0.541). Student-Centered Learning (SCL) had the highest dimension mean (*M* = 4.236, *SD* = 0.593), followed by Cognitive Engagement and Problem Solving (CEPS; *M* = 4.152, *SD* = 0.601), Active Participation and Autonomy (APA; *M* = 4.116, *SD* = 0.610), Feedback and Assessment (FA; *M* = 4.112, *SD* = 0.635), and Model Implementation and Structure (MIS; *M* = 4.100, *SD* = 0.626). Collaborative Learning (CL) had the lowest mean (*M* = 4.036, *SD* = 0.673). By the categories defined in the Methods, SCL fell in the "very high" category, whereas the other five dimensions and the overall mean fell in the "high" category. Perceptions were thus generally positive, with only modest differences between dimensions.

Table 2. Descriptive Statistics of Student Perceptions by Dimension

Dimension	Items	*M*	*SD*
Model Implementation and Structure (MIS)	5	4.100	0.626
Student-Centered Learning (SCL)	5	4.236	0.593
Active Participation and Autonomy (APA)	5	4.116	0.610
Collaborative Learning (CL)	5	4.036	0.673
Cognitive Engagement and Problem Solving (CEPS)	5	4.152	0.601
Feedback and Assessment (FA)	5	4.112	0.635
Overall SP-TMIQ	**30**	**4.125**	**0.541**

Note. *M* = mean; *SD* = standard deviation. Dimension scores are means of the five items in each dimension on the 1–5 scale.

Item-Level Perceptions

Table 3 lists the items with the highest and lowest means. The highest-rated statement concerned opportunities to learn through direct experience (*M* = 4.38, *SD* = 0.635), followed by opportunities to participate in the learning process (*M* = 4.34, *SD* = 0.626) and to take an active role in learning activities (*M* = 4.28, *SD* = 0.671). The lowest-rated statement was that lecturers implement the teaching model consistently (*M* = 3.94, *SD* = 0.867). Two collaborative learning statements, mutual assistance in completing assigned tasks and individual contributions to group activities, followed closely, each with a mean of 3.98 (*SD* = 0.845). Students thus rated experiential learning and active participation relatively high, and consistency of implementation and peer collaboration relatively low. These ratings reflect student perceptions, not direct evidence of observed teaching or of effectiveness.

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Table 3. Items with the Highest and Lowest Mean Scores

Position	Item description	*M*	*SD*
Highest	Opportunities to learn through direct experience	4.38	0.635
High	Opportunities to participate in the learning process	4.34	0.626
High	Opportunities for students to take an active role in learning activities	4.28	0.671
Lowest	Consistent implementation of the teaching model by lecturers	3.94	0.867
Low	Mutual assistance in completing assigned tasks	3.98	0.845
Low	Individual contributions to group activities	3.98	0.845

Note. *M* = mean; *SD* = standard deviation. The table lists the items with the highest and lowest means among the 30 items.

Internal Consistency and Item Analysis

Table 4 presents Cronbach's alpha and the range of corrected item–total correlations for each dimension. Alpha values ranged from 0.855 to 0.901, indicating acceptable to high internal consistency in this sample. CEPS had the highest value (α = 0.901), followed by CL (α = 0.899), SCL (α = 0.894), FA (α = 0.883), APA (α = 0.878), and MIS (α = 0.855). Corrected item–total correlations ranged from 0.534 to 0.868, and every item exceeded the reference value of 0.30, so each item was positively related to its own dimension. In some dimensions, deleting certain items would have raised alpha slightly, but all 30 items were retained to preserve the intended conceptual coverage.

Table 4. Internal Consistency and Item Analysis of the SP-TMIQ

Dimension	Items	Cronbach's α	Corrected item–total correlation range	Items below 0.30
Model Implementation and Structure (MIS)	5	0.855	0.647–0.686	0
Student-Centered Learning (SCL)	5	0.894	0.712–0.786	0
Active Participation and Autonomy (APA)	5	0.878	0.534–0.830	0
Collaborative Learning (CL)	5	0.899	0.548–0.868	0
Cognitive Engagement and Problem Solving (CEPS)	5	0.901	0.578–0.835	0
Feedback and Assessment (FA)	5	0.883	0.618–0.797	0

Note. Corrected item–total correlations were computed for each item against the remaining items of its dimension.

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DISCUSSION

Overall Perceptions of Teaching Model Implementation

This study examined how students perceive teaching model implementation in PETE courses across six conceptual dimensions. The overall mean of 4.125 (SD = 0.541) indicates generally positive perceptions among the 50 participants, particularly regarding student-centered learning, cognitive engagement, and opportunities to participate. This is consistent with the wider emphasis on active, meaningful learning in physical education, and with earlier arguments that how students experience a teaching methodology or pedagogical model deserves attention alongside what the approach is intended to achieve (Crisol Moya & Caurcel Cara, 2021; Fernandez-Rio & Iglesias, 2024; Sanches Neto et al., 2026). Student perceptions can therefore serve as a useful source for reflecting on practice in PETE programs (Sanches Neto et al., 2026; Treschman et al., 2025) .

These means should nevertheless be read as a summary of self-reported experience, not as a measure of teaching quality or effectiveness. The questionnaire did not assess instructional fidelity, learning outcomes, or teaching performance, so high ratings show that students viewed the described experiences favorably, not that every model was implemented consistently or produced equal learning benefits. Ratings were also high overall, and the dimension means ranged only from 4.036 to 4.236, so differences between dimensions are small and should not be over-interpreted. Finally, the data come from 50 students at one institution, recruited through purposive sampling, and cannot speak for all PETE programs in Indonesia. They can, however, point to aspects of teaching and learning worth reflecting on at UNESA.

Model Implementation and Structure

Model Implementation and Structure (MIS) had a mean of 4.100 (SD = 0.626), indicating generally positive views of how instruction was organized. Yet the statement on consistent implementation of the teaching model had the lowest mean of all 30 items (M = 3.94, SD = 0.867), and its SD was larger than that of any other item reported here. Students may therefore be satisfied with how learning activities are organized while being less certain that approaches are applied consistently.

In PETE courses, clear objectives, coherent instructional sequences, and alignment between activities and intended outcomes are central to organizing learning, and pedagogical models offer a way to connect them, although implementation can vary with course content and conditions (Fernandez-Rio & Iglesias, 2024). The lower rating for consistency is thus best treated as an area for reflection, not as evidence that lecturers failed to implement their models properly. These data cannot show whether the variation reflects differences in implementation, differences between courses, or the way students read the item.

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Student-Centered Learning

Student-Centered Learning (SCL) had the highest dimension mean (M = 4.236, SD = 0.593). Opportunities to learn through direct experience received the highest item mean (M = 4.38, SD = 0.635), and opportunities to participate in the learning process also scored high (M = 4.34, SD = 0.626). Participants seem to have valued practical engagement and active involvement most.

This matters for PETE because future teachers need chances to link concepts with practice and reflection (Esser-Noethlichs et al., 2026) . Learning by taking part may help students engage with course content and notice how instructional activities shape learning, and research on teaching methodologies in physical education likewise stresses the importance of students' experiences of pedagogical approaches (Crisol Moya & Caurcel Cara, 2021; Sørensen & Lagestad, 2024). Positive perceptions of student-centered learning do not, however, equal competence in designing or delivering such instruction, because the study measured how students perceived their own learning and not their performance as prospective teachers (Kim et al., 2023) .

Active Participation and Autonomy

Active Participation and Autonomy (APA) had a mean of 4.116 (SD = 0.610), indicating generally positive views of opportunities to contribute ideas, make decisions, and take responsibility for learning. Perceptions differed somewhat across aspects of autonomy: the statement on responsibility for one's own learning scored 4.28 (SD = 0.701), whereas the statement on becoming more independent in learning scored 4.00 (SD = 0.756).

Students thus generally felt they had room to take responsibility for learning, but taking responsibility for completing tasks and being able to make independent instructional decisions are related rather than identical experiences (Kim et al., 2023; Tsangaridou et al., 2022). The distinction may matter in PETE, because prospective teachers will later need pedagogical judgment when planning and teaching lessons (Krepf & König, 2023; Xie et al., 2022) . This points to the value of activities in which students explain their reasoning, choose strategies, and reflect on the consequences of their decisions. The survey cannot show whether such opportunities were spread equally across students or provided consistently across courses.

Collaborative Learning

Collaborative Learning (CL) had the lowest dimension mean (M = 4.036, SD = 0.673), although it still fell in the high category. The statements on mutual assistance in completing tasks and individual contributions to group activities each had a mean of 3.98 (SD = 0.845), so collaboration was perceived positively but slightly less favorably than the other dimensions.

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The gap with the higher-rated SCL dimension may indicate that taking part individually is not the same as working well in a group: joining an activity does not guarantee that everyone contributes equally, helps peers, or shares responsibility for a group task. The distinction matters in physical education, where group activities often require students to coordinate actions, exchange ideas, and share responsibility for collective outcomes. The results do not show that collaboration was inadequate or that students lacked teamwork skills; they only mark peer support and individual contribution as aspects worth examining more closely.

Cognitive Engagement and Problem Solving

Cognitive Engagement and Problem Solving (CEPS) had the second-highest dimension mean (M = 4.152, SD = 0.601). The statement on making decisions based on the situation scored 4.20 (SD = 0.670), and the statements on evaluating alternative solutions and developing strategies or solutions each scored 4.18. Students generally perceived opportunities for decision making and problem solving, which suggests that learning involved more than following instructions.

In physical education, cognitive engagement can mean reading game situations, analyzing movement problems, weighing possible strategies, and deciding in changing practical settings (Manninen et al., 2025b; Wang et al., 2024) . Such experiences matter for prospective teachers, who need to design tasks that encourage their own students to reason and respond to different situations. The questionnaire, however, measured perceived opportunities for cognitive engagement, not cognitive performance, so high ratings do not show that students solved problems well or transferred those skills to teaching.

Feedback and Assessment

Feedback and Assessment (FA) had a mean of 4.112 (SD = 0.635), indicating generally positive views of the feedback and assessment experiences described. The statement that feedback helped students understand what needed improvement scored 4.24 (SD = 0.744), whereas the statement on alignment between assessment forms and learning activities scored 4.00 (SD = 0.782). Students thus recognized the usefulness of feedback, while the alignment between assessment and learning activities appears to leave more room for reflection.

In PETE, feedback helps students understand performance expectations, identify what to improve, and reflect on the quality of their practical or theoretical work (Nyberg et al., 2026). This is especially relevant to future teachers, who will have to interpret assessment evidence and give constructive feedback to their own learners. Student perceptions alone cannot establish the accuracy, fairness, consistency, or instructional impact of assessment (Quansah et al., 2024) , so these findings are a starting point for reflection and not a final evaluation of assessment quality.

Internal Consistency and Measurement Implications

Cronbach's alpha ranged from 0.855 to 0.901 across the six dimensions, and every corrected item–total correlation (0.534–0.868) exceeded the 0.30 reference value. This provides preliminary evidence that items within each dimension were internally consistent in this sample. Alpha values near 0.90 for five-item scales may also hint at some item redundancy, which later analyses could examine. Deleting some items would have raised alpha slightly in a few dimensions, but all 30 were retained to keep the intended conceptual coverage; reliability coefficients alone should not decide item retention, especially when a questionnaire covers several related but distinct aspects of learning experience.

These results must also be read against how the instrument was developed. The six dimensions come from conceptual adaptation, no formal expert content validation took place, and factor analysis did not test the six-dimension structure. The reliability estimates are therefore not comprehensive evidence of validity, nor proof that the dimensions are empirically distinct constructs. The SP-TMIQ remains a preliminary descriptive instrument.

Implications for Physical Education Teacher Education

Taken together, the findings show both positively perceived experiences and aspects of PETE courses that merit further reflection. The relatively high ratings for student-centered learning and direct experience suggest that practical involvement and participation are prominent features of the experiences participants reported, whereas the lower scores for collaborative learning and consistency of implementation point to two aspects that lecturers and programs may wish to examine.

At the course level, lecturers could review how learning objectives, instructional stages, student tasks, and assessment are communicated and linked across a course. Explaining objectives and stages more clearly may help students see the purpose and structure of activities, and group tasks could include explicit roles, shared responsibilities, and room for every student to contribute. These suggestions follow from the observed patterns; this study did not test whether they are effective.

At the program level, student perception data can complement other forms of course evaluation. Surveys show how students experience learning, while classroom observations, lecturer reflections, interviews, and assessment records can help explain the ratings. Drawing on several sources provides a fuller basis for reviewing teaching than student perceptions alone (Finefter-Rosenbluh et al., 2021).

The SP-TMIQ could serve as a starting point for structured discussion about learning experiences in PETE. Because its content validity and dimensional structure have not yet been established, however, it should be used with caution and not as a validated ranking tool for lecturers, courses, or teaching models. Wider evaluative use depends on further development and validation.

Limitations and Future Research

Several limitations should be noted. First, the sample comprised 50 students from a single institution, UNESA, recruited through purposive sampling, so the results are contextual and not nationally representative. Teaching practices, curricula, and learning environments differ between institutions, which limits transferability to other PETE programs. Second, the study relied on self-reported perceptions from an online questionnaire. Answers may reflect how students interpret and remember their experiences, and social desirability may have contributed to the high ratings. No classroom observations, interviews, or independent measures of learning outcomes were available to corroborate them.

Third, participants reported experience with several teaching models, and their exposure to each model was not comparable. The frequencies provide context only and cannot be used to compare models or to attribute perception scores to a particular model. Fourth, the SP-TMIQ was developed through conceptual adaptation without formal expert content validation. The reliability analysis offers preliminary evidence of internal consistency, but content validity and the proposed dimensional structure remain to be established, and the small single-institution sample limits broader measurement claims.

Future research should recruit larger samples from several institutions and examine item relevance, clarity, and comprehensibility through expert review and pilot testing. Factor analysis could then test the proposed structure if the sample size and data allow it. Combining perception surveys with classroom observations, interviews, lecturer reflections, and measures of learning outcomes would also help explain how reported experiences relate to teaching practice and student learning. Performance-based tasks such as lesson planning, together with records of assessment criteria and lecturer feedback, could show whether perceived opportunities for decision making, autonomy, and feedback correspond to demonstrated competencies.

CONCLUSION

This study described students' perceptions of teaching model implementation in PETE courses at UNESA and examined the preliminary internal consistency of the SP-TMIQ. The overall mean was 4.125 (SD = 0.541), indicating generally positive perceptions among the 50 participants. Student-Centered Learning had the highest dimension mean and Collaborative Learning the lowest. At the item level, opportunities to learn through direct experience were rated highest and consistent implementation of the teaching model lowest. These results point to aspects of the learning experience that may inform reflection on teaching in PETE courses.

Cronbach's alpha ranged from 0.855 to 0.901 across the six dimensions, and all corrected item–total correlations exceeded 0.30, suggesting acceptable internal consistency in this sample. This does not establish instrument validity or the six-dimension structure, and the single-institution, purposively sampled, self-reported data do not permit comparisons of teaching model effectiveness or conclusions about teaching performance or learning outcomes. Further research involving multiple institutions, expert content review, pilot

testing, and examination of the dimensional structure is needed before the questionnaire is recommended for wider evaluative use.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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